

IN THE CLAIMS

Please amend the claims as follows, substituting any amended claim(s) for the corresponding pending claim(s):

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)

6. (Currently Amended) An apparatus ~~comprising~~ comprises:
a protection circuit to provide overvoltage protection and backflow current protection when an external voltage is received through a data transfer link and used to charge a battery, in which the external voltage exceeds nominal value of a rail voltage supplied by the battery, the protection circuit to accept the external voltage, but to ensure that node-to-node potential on circuit components ~~to not~~ do not exceed a specified value when the external voltage is used to charge the battery and to prevent backflow current from the battery to the data transfer link when the external voltage drops below battery voltage;
a biasing circuit to bias the protection circuit; and
a switching circuit to change the bias applied by the biasing circuit to selectively switch a mode of operation of the protection circuit between the overvoltage protection and the backflow current protection, wherein the protection circuit uses a floating well transistor, in which its gate is to be biased by the switching circuit when in the backflow current protection mode of operation, to turn off the floating well transistor to eliminate a current path from the battery to a line of the data transfer link that supplies the external voltage.

7. (Currently Amended) The apparatus of claim 6, wherein the protection circuit ~~uses a~~ uses the floating well transistor, in which its gate is to be biased by the switching circuit when in the overvoltage protection mode of operation, to ensure that the node-to-node potential on the circuit components does not exceed the specified value.

8. (Cancelled)

1 9. (Currently Amended) The apparatus of ~~claim 8~~ claim 6, wherein the external
2 voltage is received from a Universal Serial Bus link.

1 10. (Currently Amended) A protection circuit to use with a battery to provide
2 overvoltage and backflow current protection ~~comprising~~ comprises:
3 a first transistor to receive an external voltage from an external power source and
4 to operate as a current source to charge the battery;
5 a second transistor disposed between the first transistor and the battery, in which
6 biasing of a gate of the second transistor determines mode of ~~protection~~ operation provided;
7 the second transistor uses a floating well to provide overvoltage protection to
8 internal circuitry of an integrated circuit supplied by the battery when external voltage is applied
9 to power the internal circuitry and to charge the battery;
10 the second transistor also uses the floating well to provide backflow current
11 protection to the external power source when the external voltage drops below battery voltage;
12 a biasing circuit to bias the gate of the second transistor to place the second
13 transistor in either the overvoltage protection or backflow current protection mode of operation;
14 and
15 a switching circuit to change the bias applied by the biasing circuit to switch the
16 mode of operation between overvoltage protection and backflow current protection.

1 11. (Original) The protection circuit of claim 10, wherein a first bias voltage applied
2 to the gate of the second transistor, when in the overvoltage protection mode of operation,
3 ensures that voltage beyond a specified value, which is less in magnitude than the external
4 voltage, is not impressed across either the first or second transistors.

1 12. (Currently Amended) The protection circuit of claim 11, wherein a second bias
2 voltage applied to the gate of the second transistor, when in the backflow current protection
3 mode of operation, ensures that the second transistor is turned off to eliminate a current path
4 from the battery to the external power source when the external voltage drops below the battery
5 voltage.

1 13. (Original) The protection circuit of claim 12, wherein the biasing circuit further
2 includes an input circuit to set the first bias voltage and the switching circuit to switch the first
3 bias voltage onto the gate of the second transistor when the external voltage is present.

1 14. (Original) The protection circuit of claim 13, wherein the biasing circuit further
2 includes a resistor to couple the battery voltage to the gate of the second transistor to provide the
3 second bias voltage, if the first bias voltage is removed from the gate of the second transistor and
4 the battery voltage is greater in magnitude than voltage at an opposite terminal of the second
5 transistor.

1 15. (Original) The protection circuit of claim 14, wherein the external voltage is
2 received from the external power source through a data transfer link.

1 16. (Original) The protection circuit of claim 15, wherein the data transfer link is a
2 Universal Serial Bus.

1 17. (Currently Amended) A method of providing overvoltage protection and back
2 flow current protection comprising:

3 linking an external voltage to charge a battery and to power circuitry of an
4 integrated circuit powered by the battery;

5 providing a first biasing to a protection circuit to prevent excessive external
6 voltage from being applied to the circuitry, when the external voltage is linked to the integrated
7 circuit;

8 providing a second biasing to the protection circuit to prevent backflow current
9 flow from the battery to external source of the external voltage, when the external voltage drops
10 to a specified voltage below that of the battery;

11 switching between overvoltage protection and backflow current protection modes
12 of operation by switching in the first or second biasing based on a value of the external voltage,

13 wherein the first and second biasing are provided to a transistor having a floating
14 well, in which the first biasing allows current flow to charge the battery, but prevents more than
15 a specified voltage to be dropped across circuit components of the integrated circuit, and the
16 second biasing causes the charging circuit to be opened to prevent backflow of current.

18. (Cancelled)

1 19. (Currently Amended) The method of ~~claim 18~~ claim 17, wherein the second
2 biasing is provided as a default biasing when the first biasing is removed.

20. (Cancelled)

21. (Cancelled)